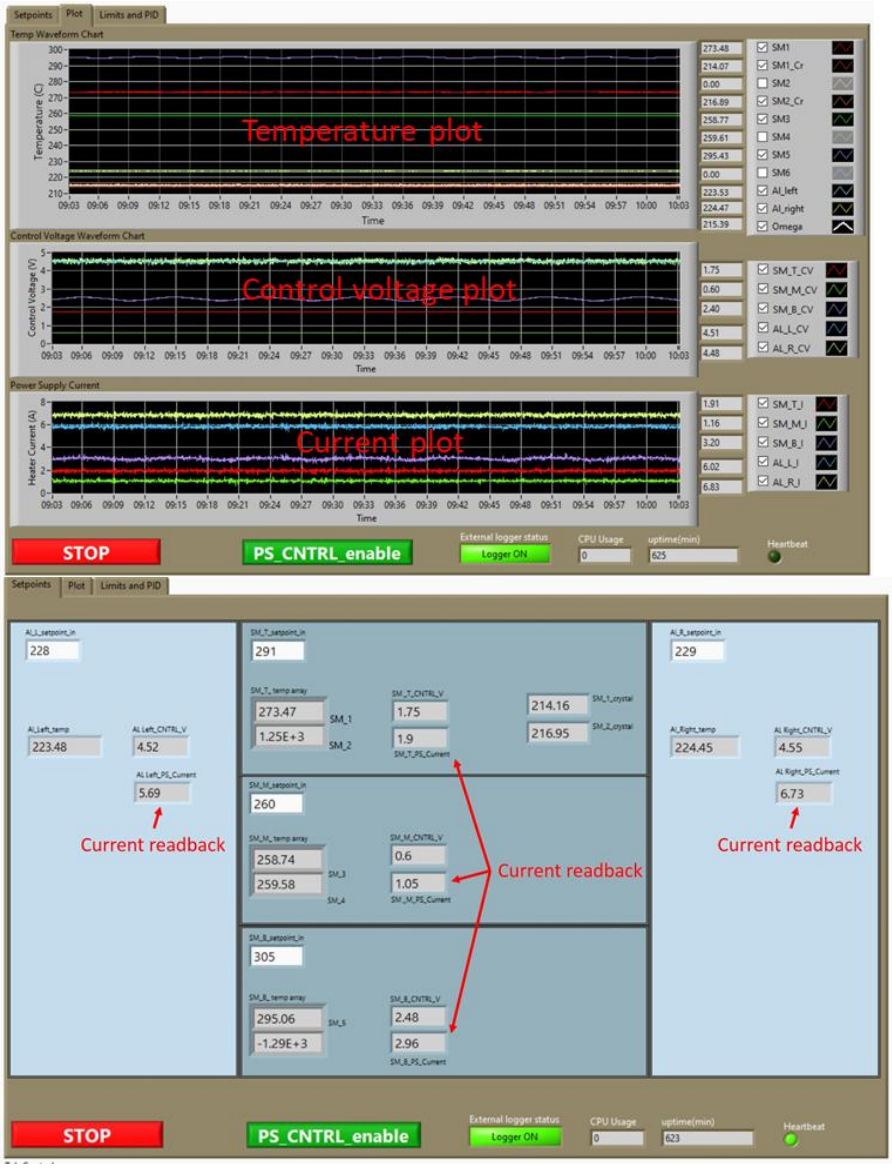
Hall A - ECal

Brian Eng, Mindy Leffel, and Marc McMullen

- Fabricated two high voltage cables with Fischer connectors; 19 of 24 completed
- Bench-tested current sensors with 1-ohm resistor as load
  - ✶ Confirmed that sensor previously used (temporarily powered with 25 VDC instead of 5 VDC) was still functional
  - ✶ Performed similarly to an unused sensor, however, slight difference in 0 A offsets. Calibration only needed to get highest accuracy; unneeded in actual system
- Added five current sensors to the test stand to monitor the current of the five channels
- Revised controls software
  - ✶ Added PID settings configuration file
  - ✶ Added current monitoring and plot of all five channels to controls GUI



Hall B – Environmental Monitoring

Brian Eng

- Got list of power-over-Ethernet (PoE) capable switches from Computer Center
  - ✶ Microcontroller turned on via PoE switch

Hall B – Torus

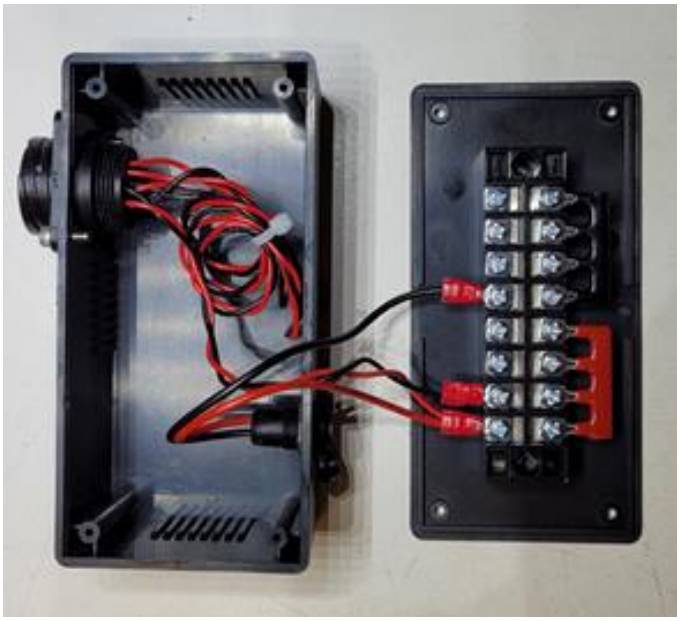
Brian Eng and Tyler Lemon

- Investigated vacuum system behavior
  - ✶ Roots blower pump was not turning on as expected
  - ✶ Vacuum controllers' local screens are malfunctioning, preventing controllers' settings from being checked
  - ✶ Connected to controllers using remote serial interface to read their settings
    - Limits did not match vacuum system documentation
    - Waiting for correct parameters

Hall C – NPS

Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Mindy Leffel, and Marc McMullen

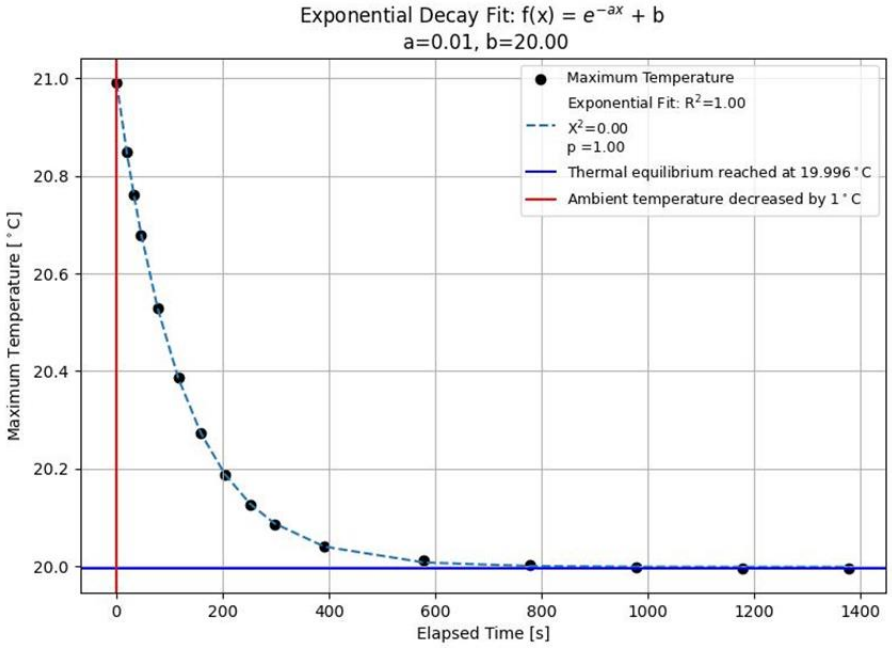
- Populated humidity sensor power supply box

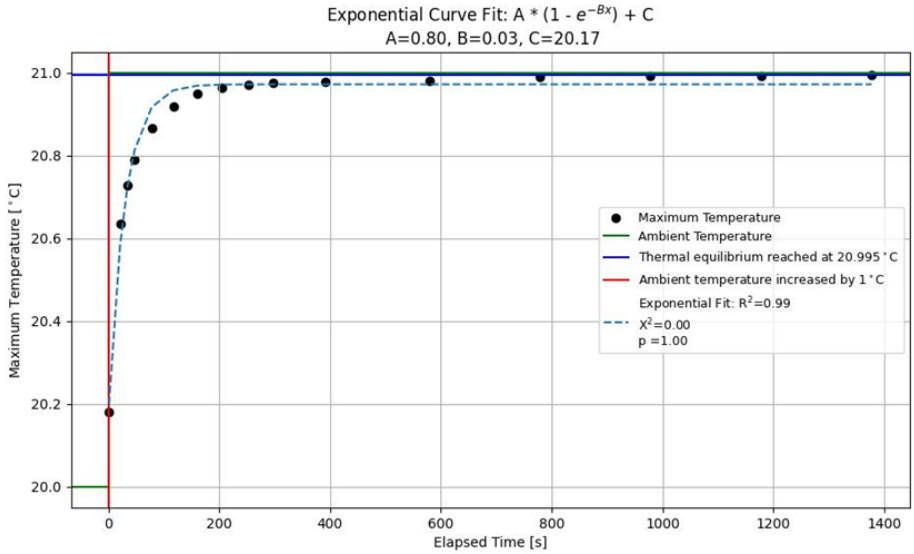


- Debugging thermal readback and chiller controls LabVIEW program
  - ✶ The Boolean arrays for the chillers' alarms and indicators stopped being sent to their EPICS shared variables
    - Broke up the chiller arrays and sent the individual Boolean indicators' values to 32 newly created EPICS shared variables (16 each for the crystal zone and electronics zone)

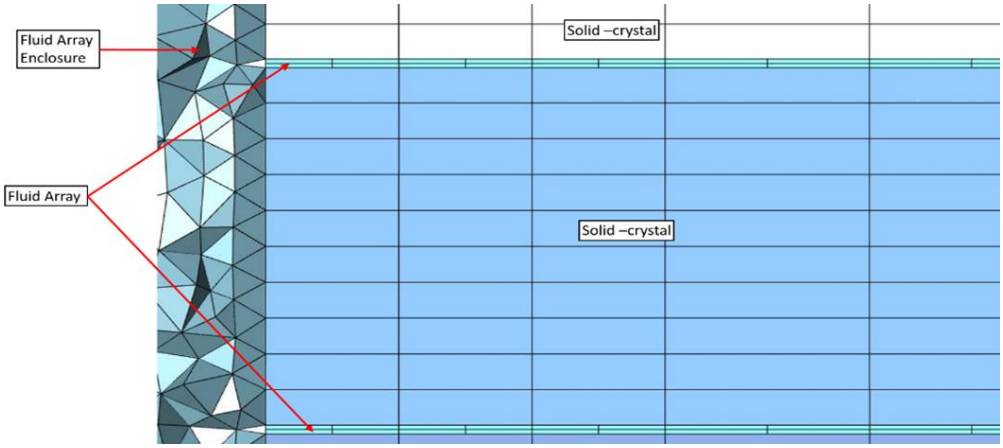
- ✶ Debugged configuration file subVI
  - Trip delay value was changed from a single value to an array, which broke the subVI; changed values to arrays in the subVI, fixing problem
- ✶ Debugging reset averaging and reset interlock buttons, which stopped working
  - Changed buttons' function from "latch when pressed" to "switch when pressed" and added code to change the buttons back to *false* after the variable is read by LabVIEW
- ✶ Investigating cause of LabVIEW problem with Boolean EPICS shared variables

- Continued plotting and fitting Ansys Transient thermal simulation results of 1°C increase/decrease in ambient temperature



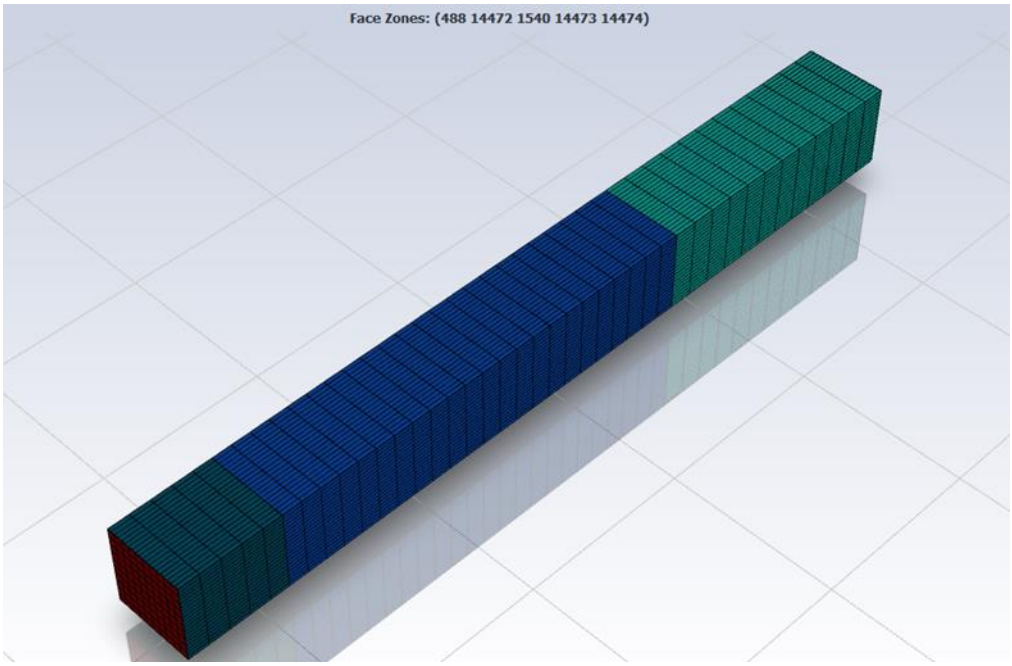


- Made four LabVIEW subVIs that build a shared variable array from individual shared variables
- Ansys Fluent thermal analysis
  - ✶ Improved mesh for the fluid between crystals resulting in 17 M cells



Right side, cross-section, close-up of the fluid surrounding the crystal array. There are two layers for the fluid between each crystal.

  - ✶ Separated each crystal into five regions—front, carbon fiber, air, mu-metal, and back



Isometric view of crystal meshed and sectioned into five regions

Hall D – JEF

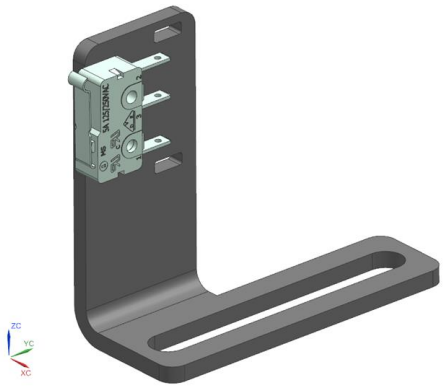
Mindy Leffel

- Populated 15 PMT bases; 575 of 1750 completed

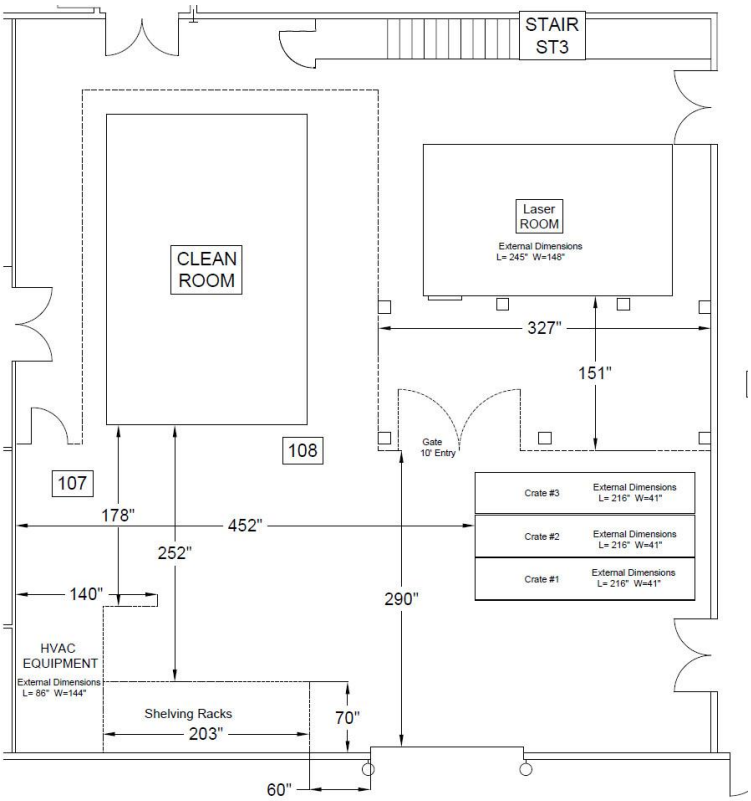
EIC - DIRC

Mindy Leffel, George Jacobs, Tyler Lemon, and Marc McMullen

- Designing laser interlock system's interior control unit for laser controlled area
  - ✶ Enclosure will house laser interlock PCB, power distribution, and controls
- Designed bracket in NX12 for mounting switch sensors to the optical table
  - ✶ Switch sensors ensure optical table sidewalls are up while laser is running
  - ✶ Bracket is 1/8"-thick aluminum with cutouts for fastening the bracket to the optical table, cutouts for zip-tie strain relief of cables, and threaded holes for fastening switch sensor to bracket



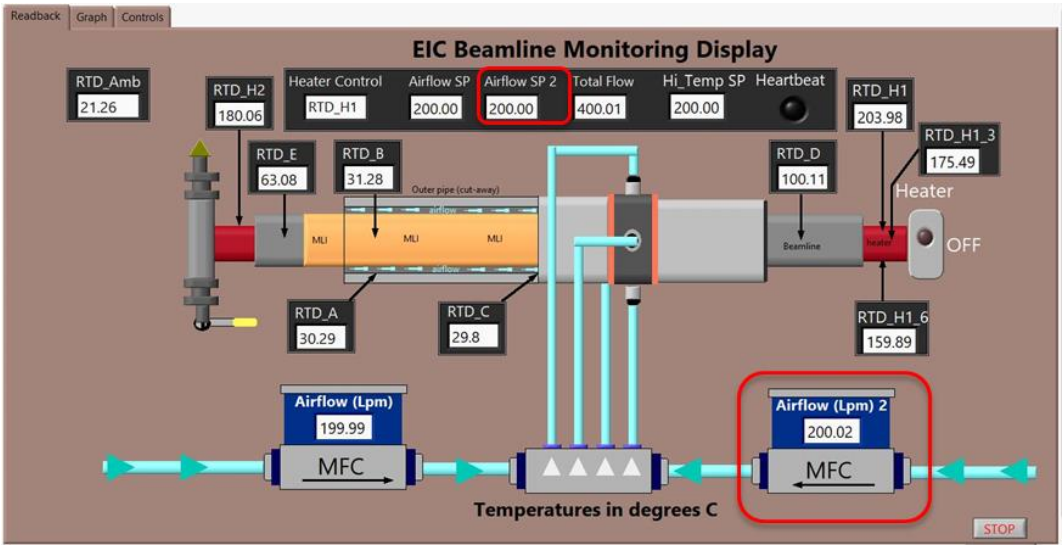
- Drew layout of laser lab, with measurements



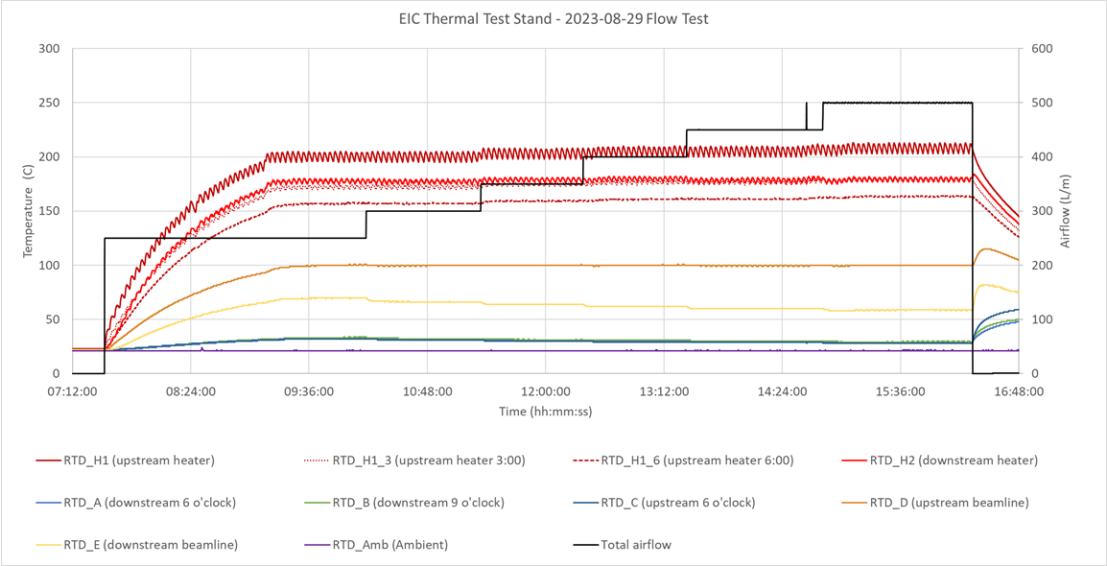
EIC - Thermal Test Stand

Pablo Campero, Brian Eng, George Jacobs, and Marc McMullen

- Added additional mass flow controller to software

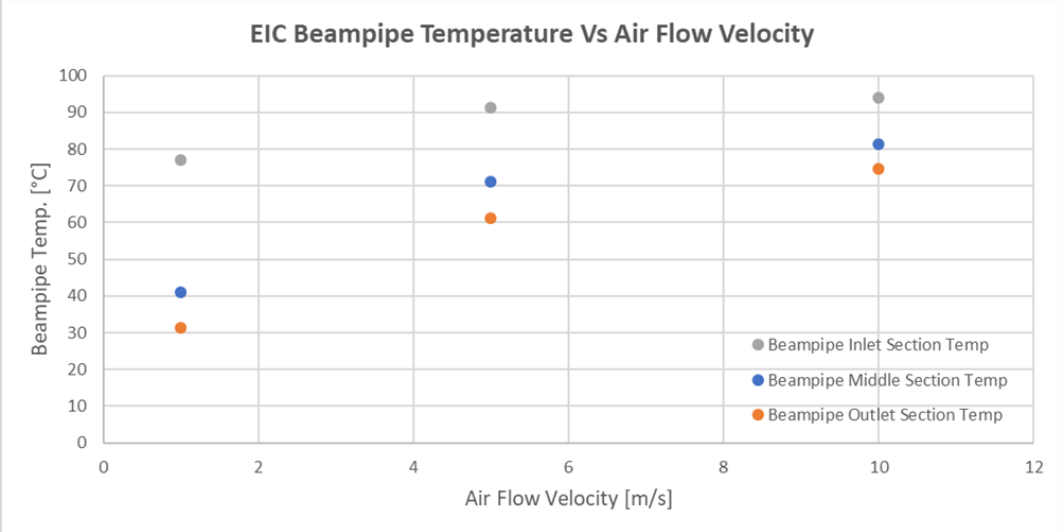


- Completed flow test—beamline = 100ºC, Si inner surface ≤ 30ºC, and targets reached at 450 L/m



- Ansys thermal analysis of 9-m beryllium pipe
  - ✶ Ran simulations with inlet air at 100°C with a velocity of 1 m/s, 5 m/s, and 10 m/s; placed probes at the inlet, middle and outlet sections

Thermal Simulation Results of 9-m Beampipe					
Airflow Velocity [m/s]	Ambient Temp [°C]	Air Inlet Temp [°C]	Beampipe Inlet Section (12 o'clock) Temp[°C]	Beampipe Mid Section(12 o'clock) Temp[°C]	Beampipe Outlet Sec (12 o'clock) Temp[°C]
1	20	100	77.09	40.99	31.27
5			91.27	71.05	61.14
10			93.92	81.24	74.64



DSG

Tyler Lemmon

- Debugging and testing Fomrlabs 3D printer
  - ✶ After second disassembly of printer and cleaning of galvanometer mirrors, test print quality is better, but last few layers still have problems
  - ✶ Waiting for response from Formlabs support